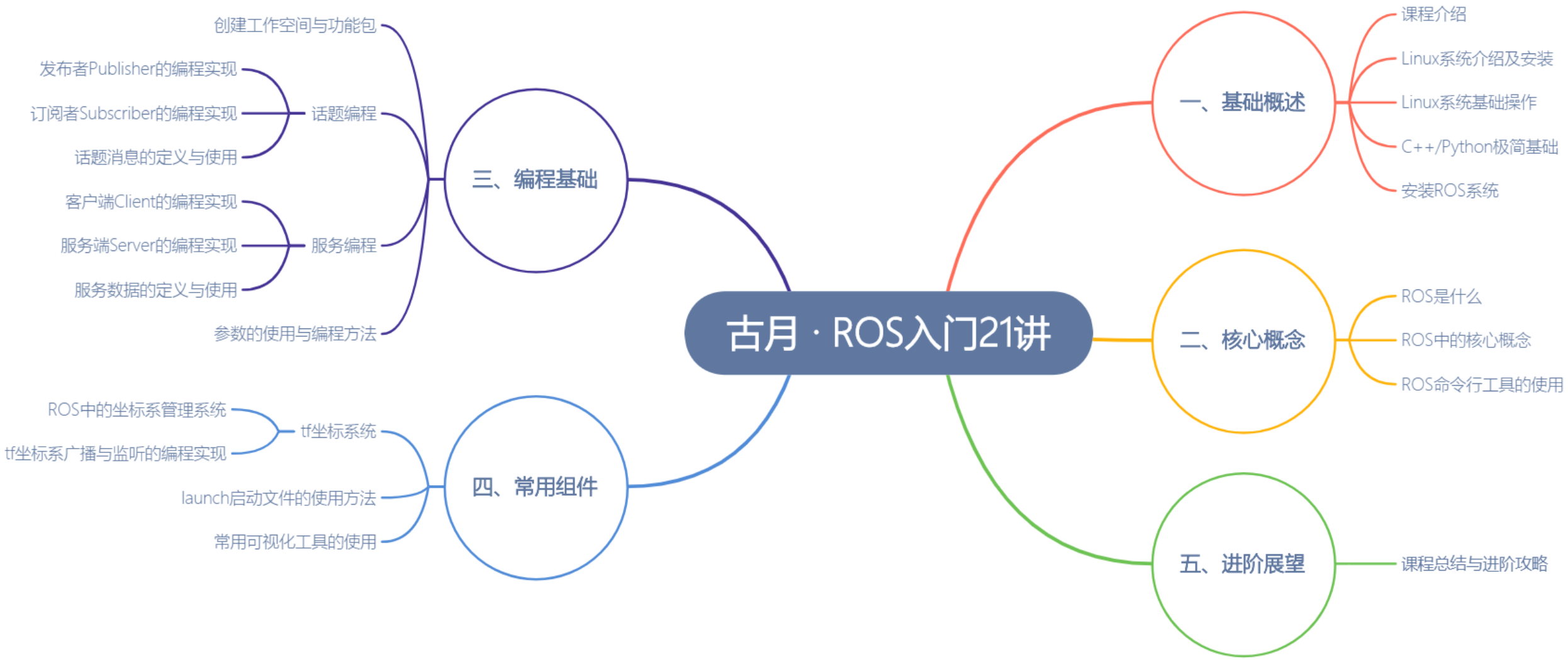
古月居 GYH.AI ROS

ROS入门
21讲

21.课程总结与进阶攻略

主讲人：古月

课程总结


古月 · ROS入门21讲
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ROS命令行工具的使用
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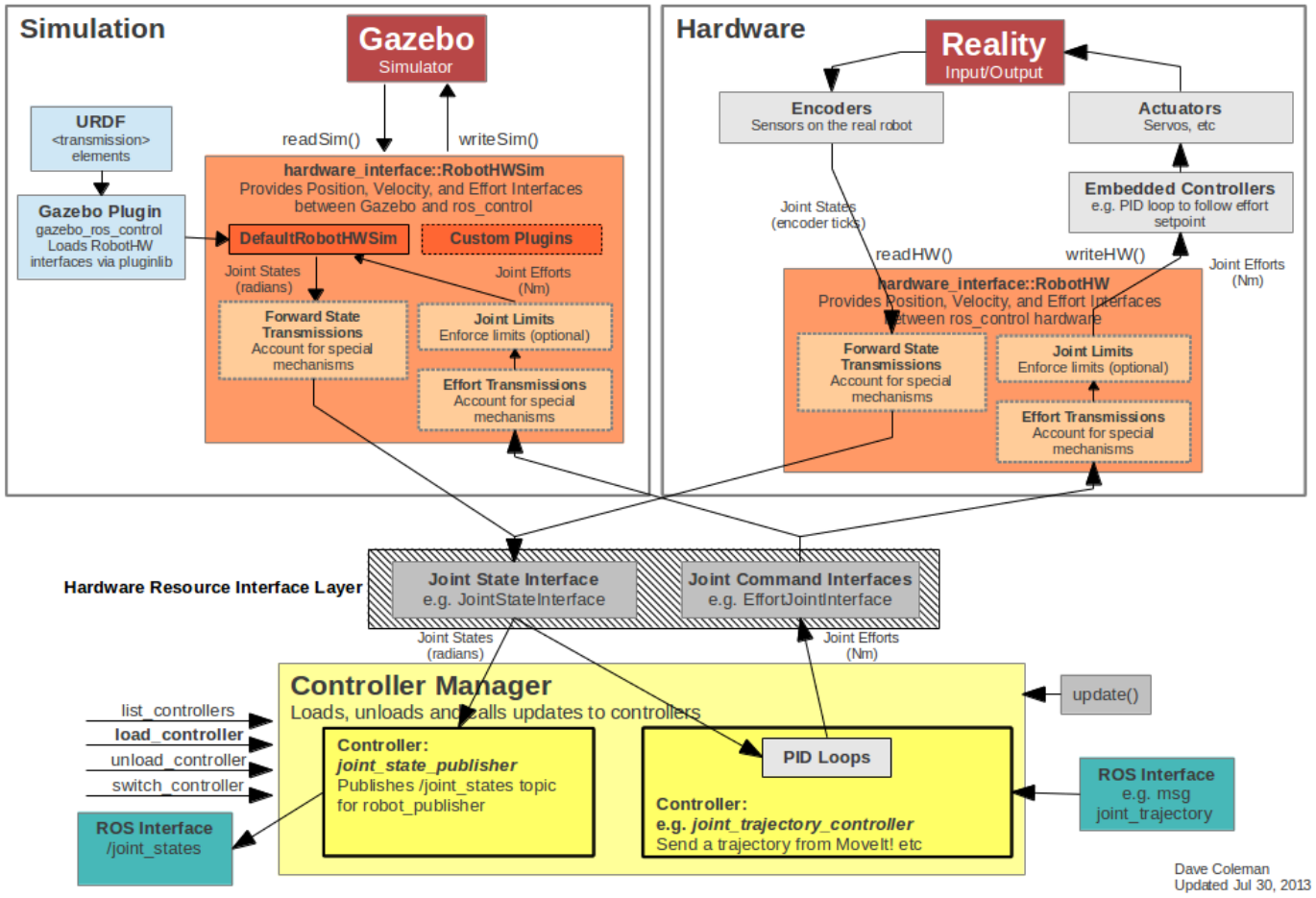
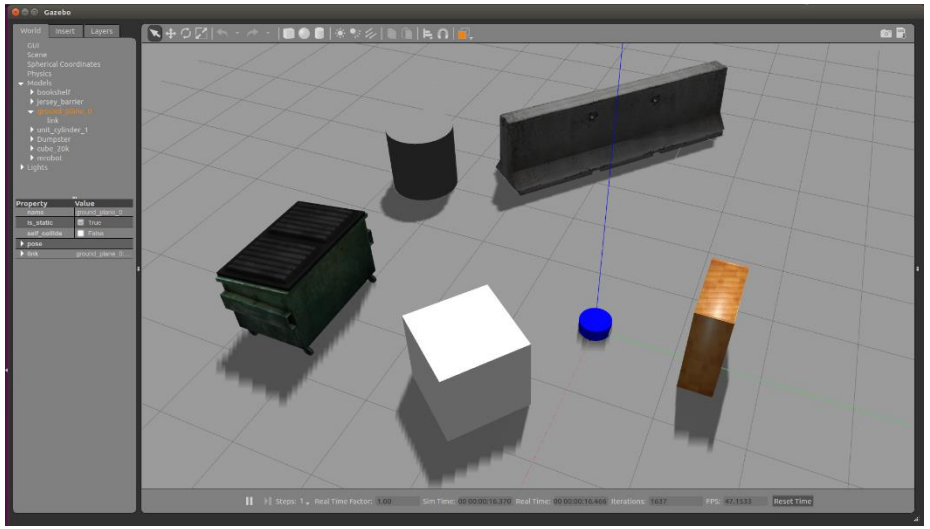
常用可视化工具的使用

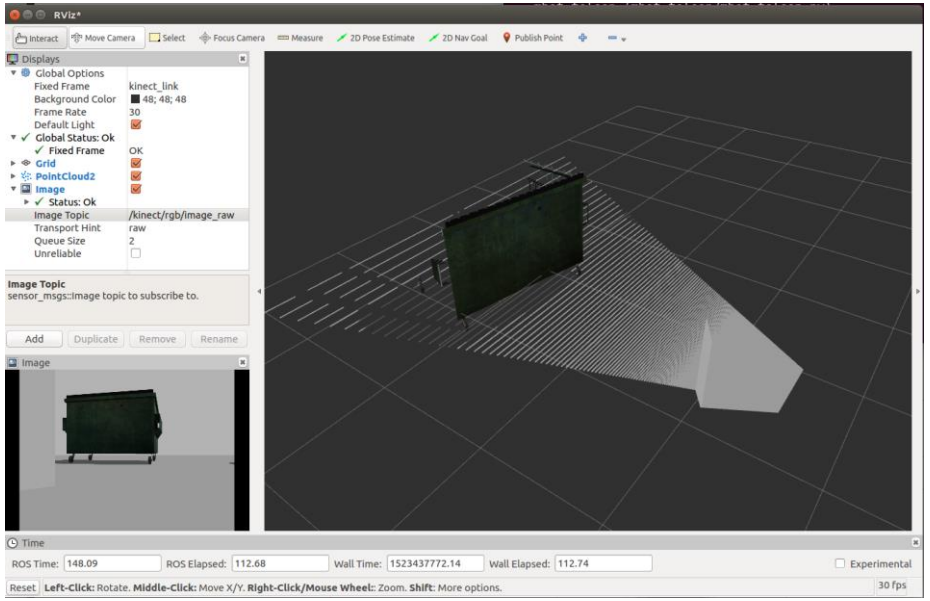
• 你可以用ROS干什么

机器人控制与仿真

GAZEBO + ROS + ros_control

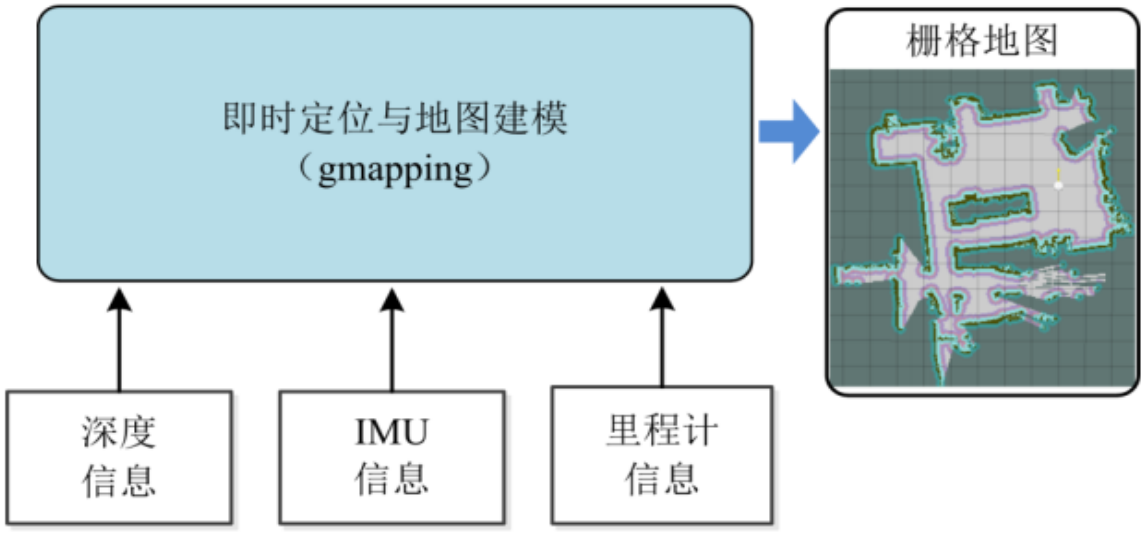






*参考链接：http://wiki.ros.org/ros_control

• 你可以用ROS干什么



gmapping

indigo | kinetic | lunar | *Show EOL distros:*

Documentation Status

Package Summary

Released | Continuous Integration | No API documentation

This package contains a ROS wrapper for OpenSlam's Gmapping. The gmapping package provides laser-based SLAM (Simultaneous Localization and Mapping), as a ROS node called slam_gmapping. Using slam_gmapping, you can create a 2-D occupancy grid map (like a building floorplan) from laser and pose data collected by a mobile robot.

- Maintainer status: unmaintained
- Maintainer: Vincent Rabaud <vincent.rabaud AT gmail DOT com>
- Author: Brian Gerkey
- License: CreativeCommons-by-nc-sa-2.0

hector_mapping

indigo | kinetic | *Show EOL distros:*

Documentation Status

***hector_slam**: hector_compressed_map_transport | hector_geotiff | hector_geotiff_plugins | hector_imu_attitude_to_tf | hector_map_server | hector_map_tools | hector_mapping | hector_marker_drawing | hector_nav_msgs | hector_slam_launch | hector_trajectory_server*

Package Summary

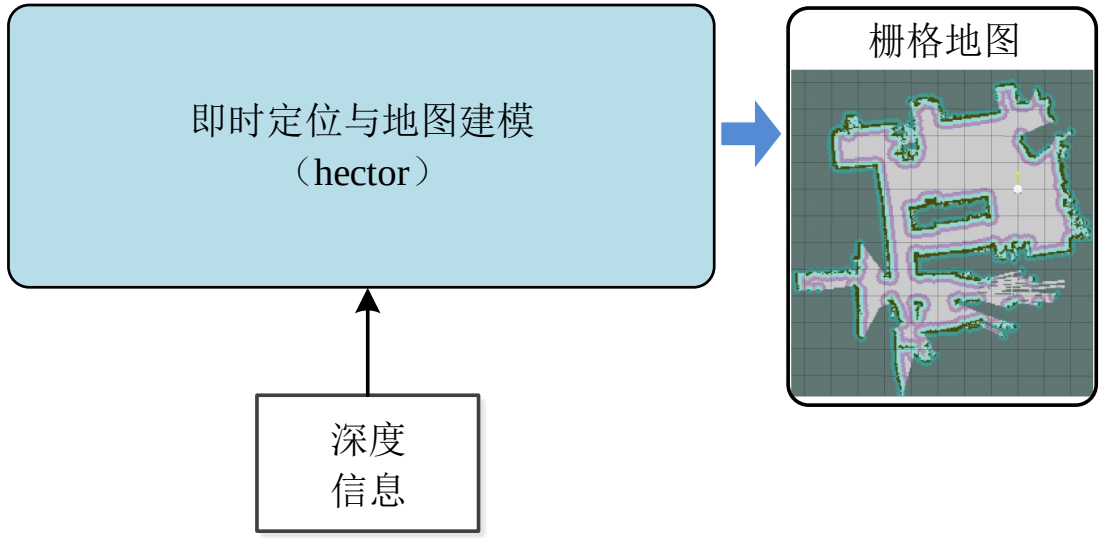
Released | Documented

hector_mapping is a SLAM approach that can be used without odometry as well as on platforms that exhibit roll/pitch motion (of the sensor, the platform or both). It leverages the high update rate of modern LIDAR systems like the Hokuyo UTM-30LX and provides 2D pose estimates at scan rate of the sensors (40Hz for the UTM-30LX). While the system does not provide explicit loop closing ability, it is sufficiently accurate for many real world scenarios. The system has successfully been used on Unmanned Ground Robots, Unmanned Surface Vehicles, Handheld Mapping Devices and logged data from quadrotor UAVs.

Package Links
Code API
Msg API
FAQ
Changelog
Change List
Reviews

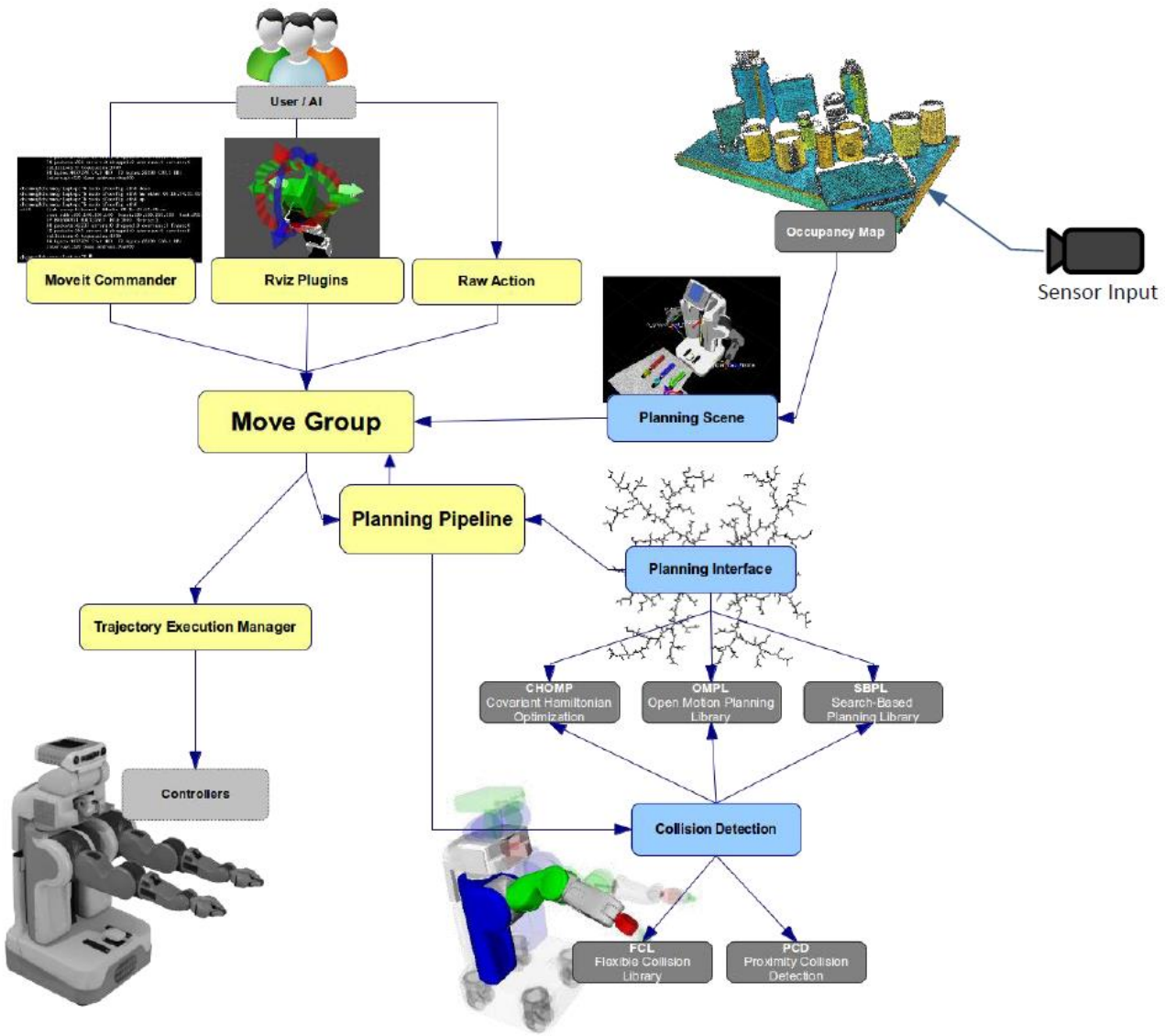
Dependencies (10)
Used by (4)
Jenkins jobs (6)

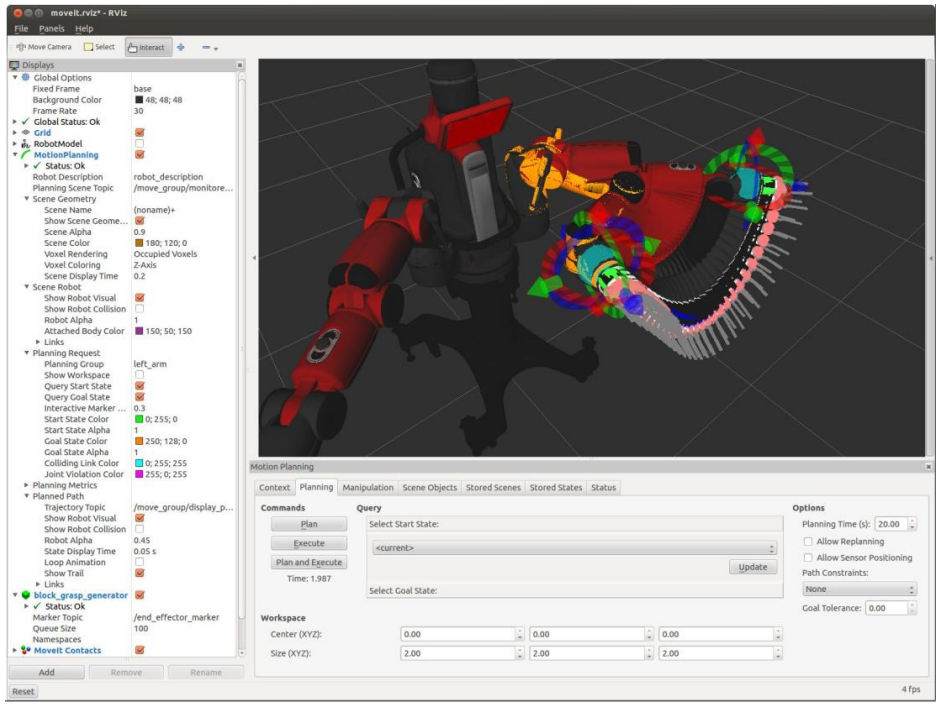
- Maintainer status: maintained
- Maintainer: Johannes Meyer <meyer AT fsr.tu-darmstadt DOT de>
- Author: Stefan Kohlbrecher <kohlbrecher AT sim.tu-darmstadt DOT de>
- License: BSD
- Source: git https://github.com/tu-darmstadt-ros-pkg/hector_slam.git (branch: catkin)

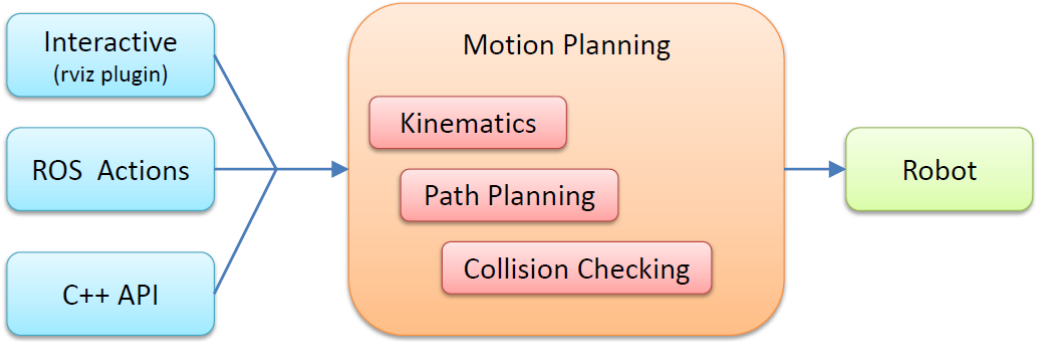


* 参考链接：http://wiki.ros.org/gmapping/、http://wiki.ros.org/hector_slam

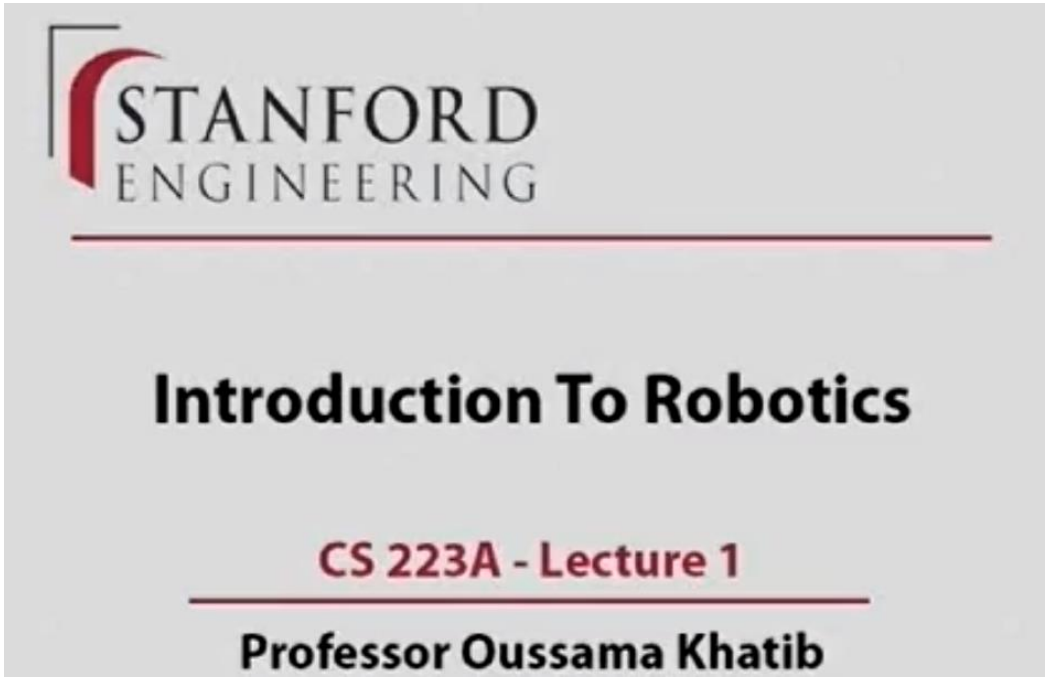
你可以用ROS干什么







* 参考链接：https://moveit.ros.org/



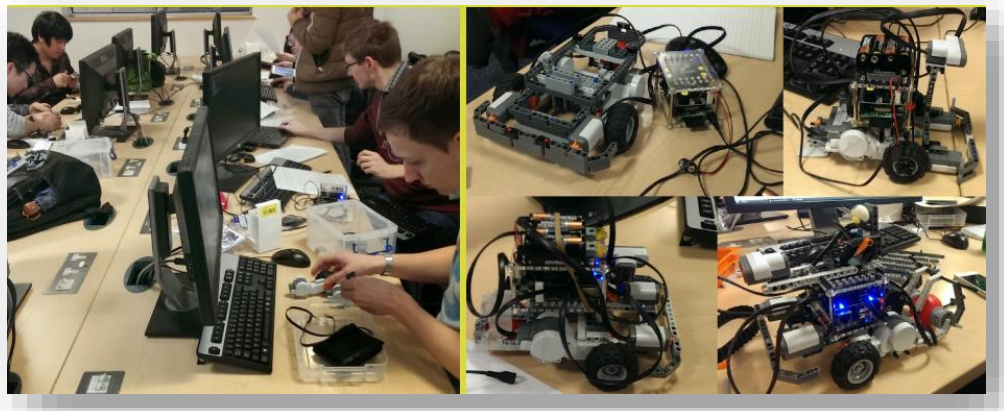
斯坦福大学公开课 —— 机器人学

https://www.bilibili.com/video/av4506104/

交通大学 —— 机器人学

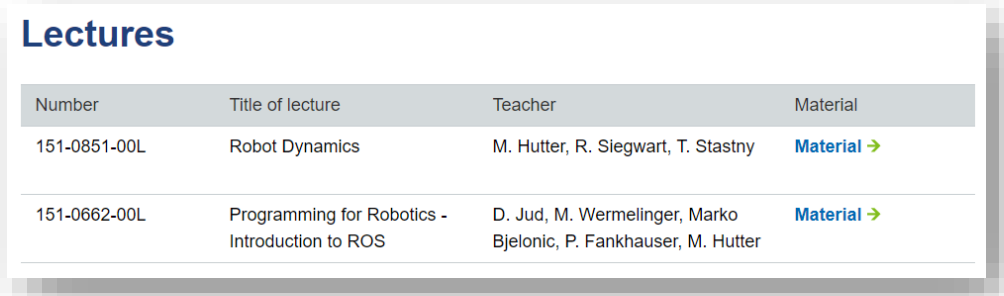
https://www.bilibili.com/video/av18516816/?p=2

资源整理



Andrew Davison的机器人学讲座课程
http://www.doc.ic.ac.uk/~ajd/Robotics/index.html

ROS理论与实践（以移动机器人为例）
http://www.shenlanxueyuan.com/course/168



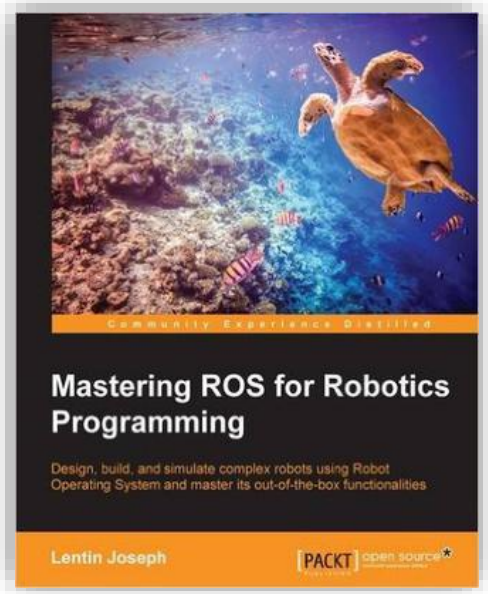
ETH - Robotic Systems Lab
http://www.rsl.ethz.ch/education-students/lectures.html

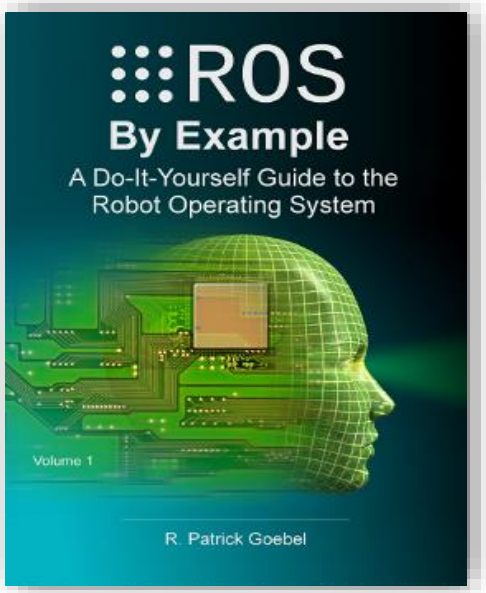
ROS机械臂开发：从入门到实战
http://www.shenlanxueyuan.com/course/154

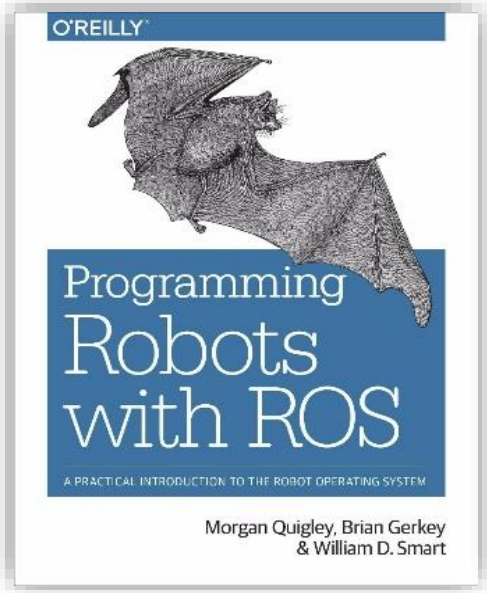
资源整理

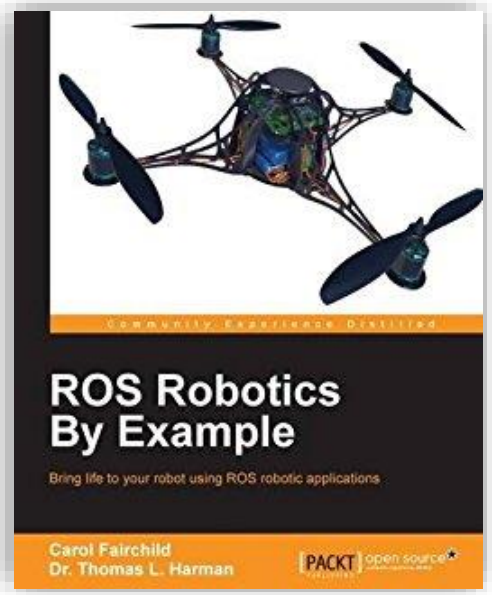
- ROS : https://www.ros.org
- ROS Wiki : http://wiki.ros.org/
- ROSCon 2012 ~ 2019 : https://roscon.ros.org
- ROS Robots : https://robots.ros.org/
- Ubuntu Wiki： https://wiki.ubuntu.org.cn
- 古月居： http://www.gyh.ai
- zhangrelay的专栏： https://blog.csdn.net/ZhangRelay
- 易科机器人实验室： http://blog.exbot.net/
- 开源机器人学学习指南： https://github.com/qqfly/how-to-learn-robotics

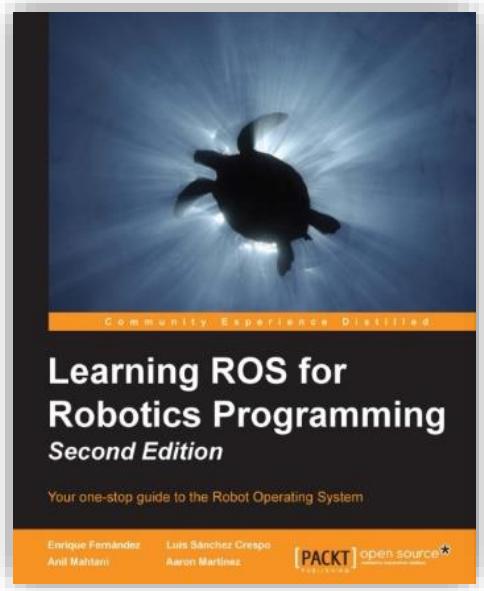
资源整理

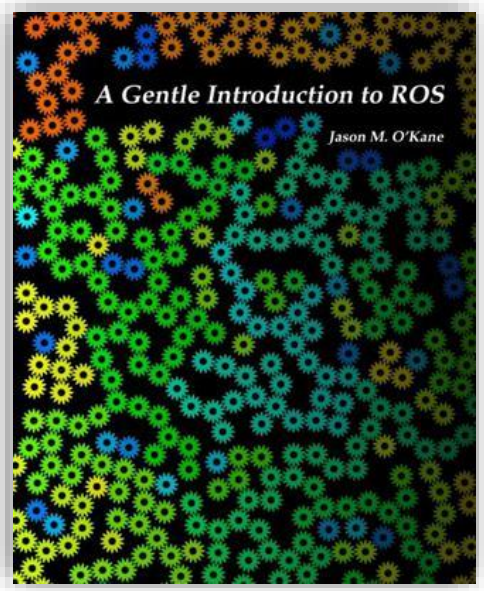


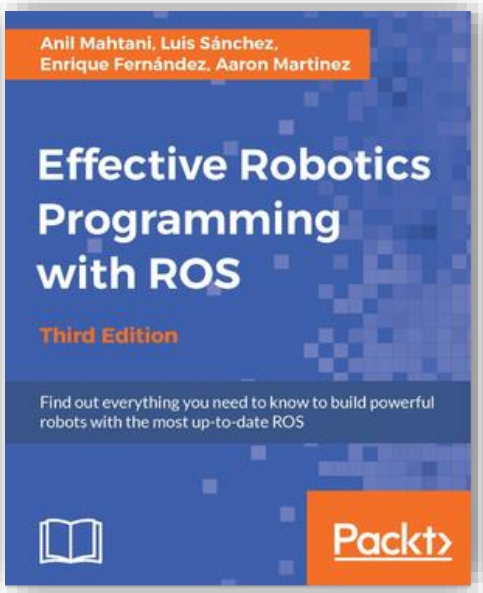


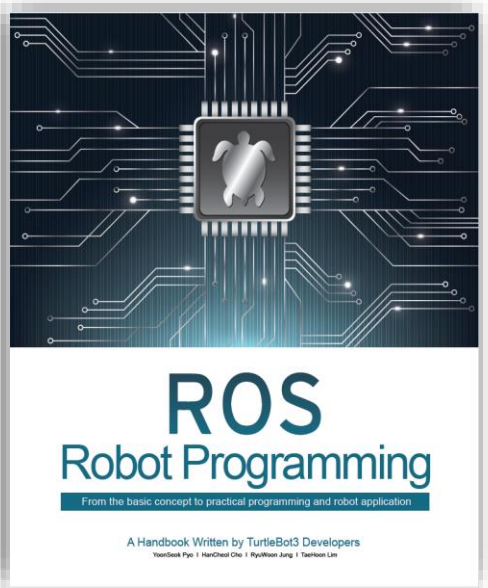












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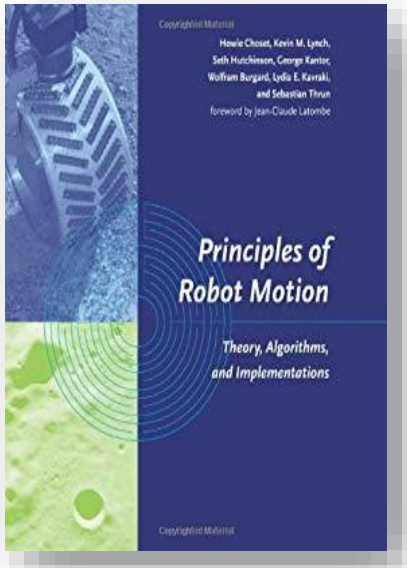

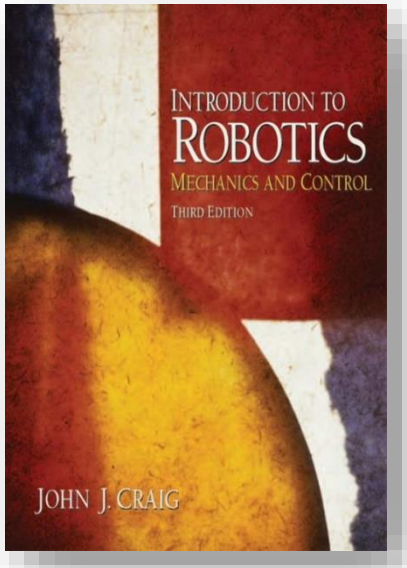

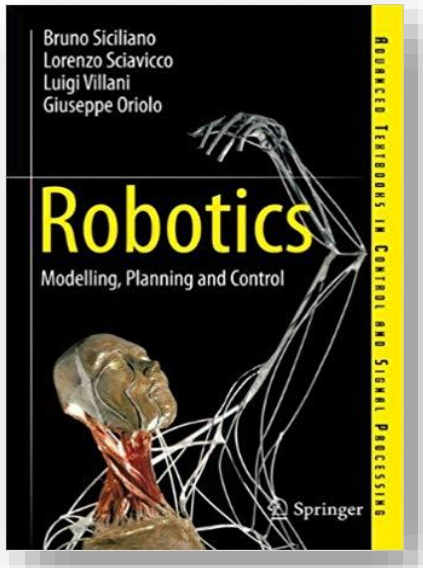

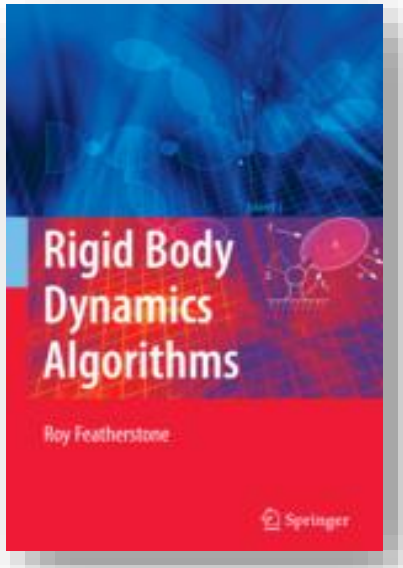

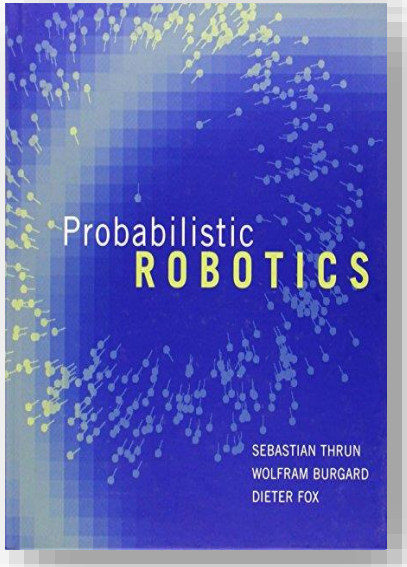

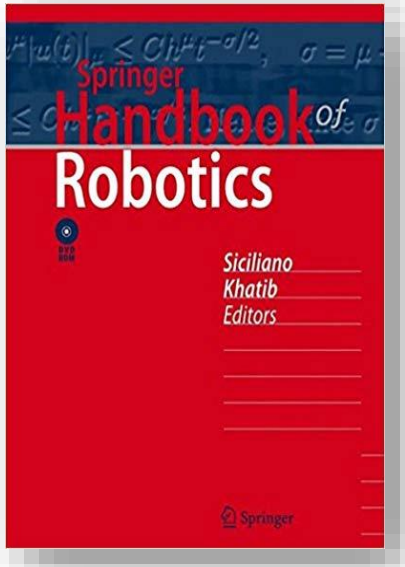

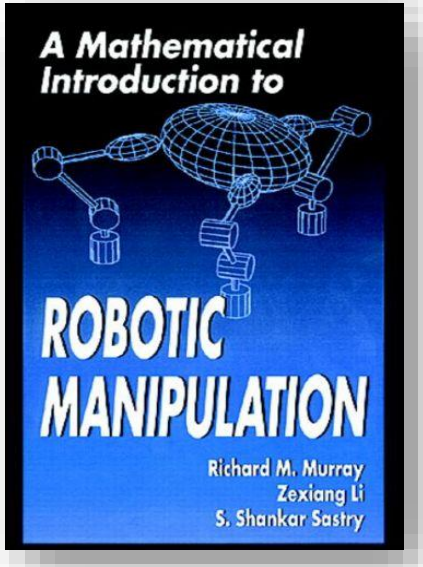

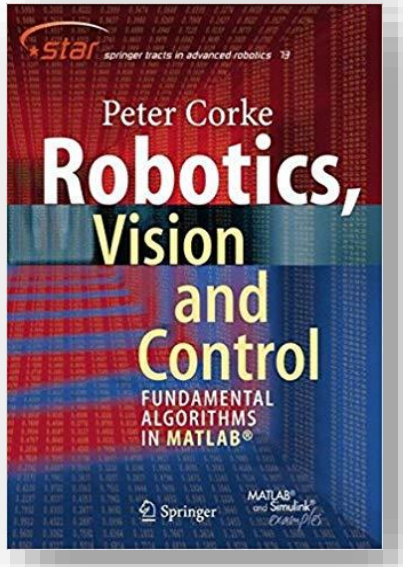

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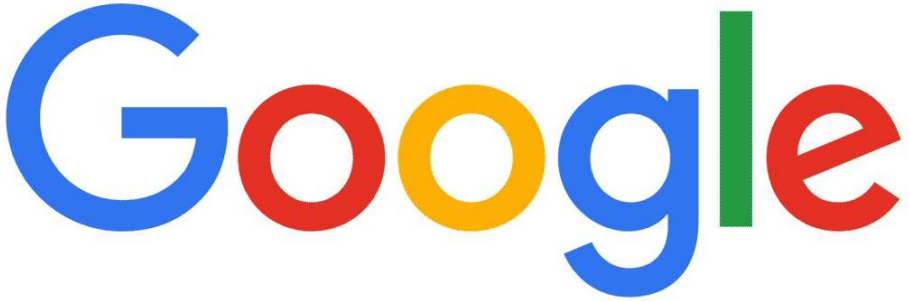

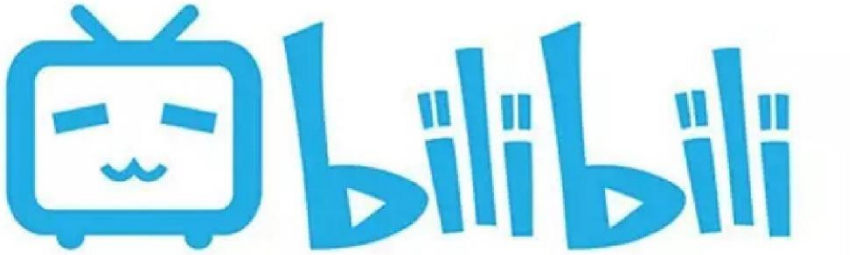

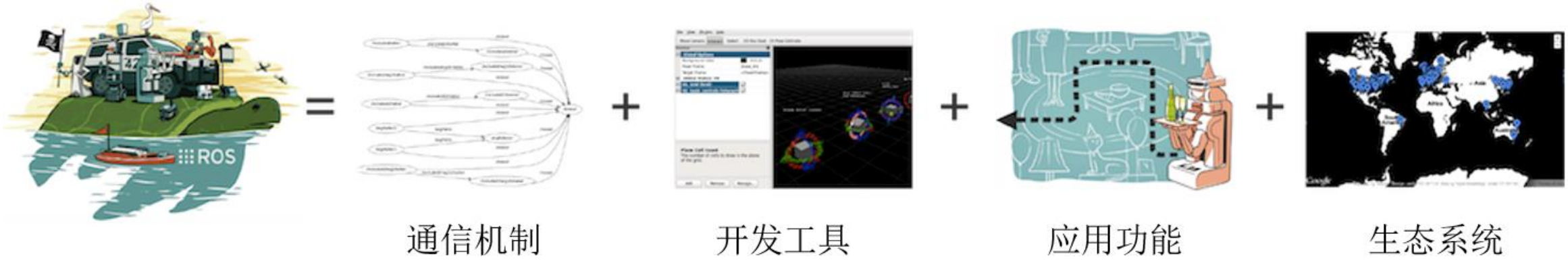

ROS是一个工具，也是一种生活方式，
但他并不完美，也不是机器人开发的全部

What is ROS? The name "robot operating system" is arguably a misnomer. Defining ROS succinctly is difficult, since it encompasses myriad aspects, including style of programming (notably, relying on loosely-coupled, distributed nodes); interface definitions and paradigms for communications among nodes; interface definitions for incorporation of libraries and packages; a collection of tools for visualization, debugging, data logging and system diagnostics; a repository of shared source code; and bridges to multiple useful, independent open-source libraries. ROS is thus more of a way of life for robot programmers than simply an operating system. Definitions of ROS are drawn from the following sources.

From the ROS wiki (`http://wiki.ros.org/ROS/Introduction`):

怕什么真理无穷，进一寸有一寸的欢喜。

——胡适

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